

September 8, 1982

CD82-6 (MC)

Dear Motorcycle Manufacturer:

The enclosed document, Instructions for the Preparation and Submission of Applications for Certificates of Conformity for 1984 Model Year Motorcycles, is forwarded for your consideration. The use of this document is optional. The instructions which were previously issued to provide guidance regarding the preparation of 1982 and 1983 model year applications may also be used. Furthermore, any application which includes all of the necessary information in some organized presentation will be accepted.

The enclosed instructions are similar to those that were issued in connection with prior model year applications with the exception that in several instances data submission requirements have been reduced or eliminated. The specific changes are:

1. The information previously specified in Sections 3, 4, 5, and 15 has been completely eliminated.
2. The amount of information specified in Sections 6 and 16 has been reduced.
3. For the small-volume manufacturers, the amount of information specified for inclusion on the certificate of conformity has been reduced.

The application structure outlined in the enclosed instructions is identical to that which was suggested for prior year applications. In instances where a previously required item of information has been eliminated, the section involved has been reserved so that the numbering system would not be disturbed.

The information which is specified in the enclosed instructions does not include all of the data and records which are specified in 40 CFR, Part 86, Subparts E and F. The information or materials which are not specified in the instructions must be retained in the applicant's files to be provided to EPA upon the receipt of a specific request.

It is my intention to continue to review our information submission requirements. I would welcome suggestions on how the application can be reorganized to be more convenient or how further reductions in content can be made consistent with EPA's function.

Any questions or comments should be directed to Mr. T. Snyder at (313)

Sincerely yours,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosure

INSTRUCTIONS
FOR THE
PREPARATION AND SUBMISSION
OF
APPLICATIONS FOR CERTIFICATES OF CONFORMITY
FOR
1984 MODEL YEAR MOTORCYCLES

ENVIRONMENTAL PROTECTION AGENCY
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Chapter 1

Introduction

The purpose of these instructions is to provide guidance regarding the preparation, submission, and revision of applications for certificates of conformity to the Federal regulations which govern exhaust emissions from 1984 model year motorcycles. Detailed specifications regarding the information which must be provided and suggestions concerning the organization and submission of this information are presented. The preparation of applications for the certification of small-volume product lines with projected sales of less than 10,000 units is specifically addressed in Chapter 4.

An application which is prepared in accordance with these instructions is EPA's principal source of information regarding the product line which is to be certified. This information provides the primary basis for the determination of compliance with emission control regulations. Therefore, the application must be complete and accurate when it is submitted. After it is submitted, it needs to be kept current by the submission of the necessary updating material.

The information specified in these instructions does not include all of the data and records which are specified in 40 CFR, Part 86, Subparts E and F. The material which is not specified in the instructions must be retained in the applicants' files to be provided to EPA upon the receipt of a specific request.

Chapter 2

General Instructions

This chapter provides general instructions regarding the preparation, submission, and revision of an application.

2.1 Letter of Intent

Under the certification protocol which will be implemented for the 1984 model year, the application for a certificate of conformity is not submitted until all phases of the certification program, including all testing, have been completed. This protocol eliminates the delays that would be incurred if interaction with EPA was necessary at the various intermediate stages of the applicant's certification program but it impairs EPA's ability to set up schedules and formulate plans which will help facilitate a timely response to the applicant's requests for assistance and approval. Therefore, the applicant is encouraged to submit a letter of intent to EPA before the application is submitted. The basic information relating to each engine family to be certified, such as the identifying family name, the anticipated

date when the request for a certificate will be submitted, and the Job 1 date should be submitted as soon as possible. The inclusion of any other general information, such as the anticipated carryover of test data from previously certified test vehicles, is recommended. The submittal of such a letter of intent should not be delayed until all information is completely finalized. Best estimates, when finalized data are not available, can be used. However, if significant changes in the anticipated certification program, such as the deletion or addition of an engine family, are made after the submission of a letter of intent, a letter which updates the previously submitted information should be forwarded to EPA.

2.2 Terminology

Certain terms contained in the format have unique connotations to assist applicants in meeting EPA's requirements for information. The following list explains the information request associated with each term.

Calibration -the set of specifications, including tolerances, unique to a particular design, version, or application of a component or component assembly capable of functionally describing its operation over its working range. (When calibration is requested, every calibration should be specified, not just a typical calibration.)

Description -a statement, account, or picture in words that describe.

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Engine Code -a unique combination within an engine-system combination (as defined in Part 86) of displacement, carburetor (or fuel injection) calibration, choke calibration (if automatic), distributor calibration, auxiliary emission control devices, and all other items described in Section 10.00.00.00 (any code or number may be used to identify engine configurations). (Any change to an existing code after production has begun automatically creates a new code and the original and the modified codes must be identified separately.)

Auxiliary Emission Control Device -any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

N/V Ratio -the quotient of engine speed in rpm divided by vehicle speed in kph measured in the highest, i.e., lowest numerical, transmission gear.

2.3 Structure of the Application

A specific application format is recommend in these instructions. However, any logical comprehensive presentation of the information specified in these instructions is acceptable. The formats which were recommended in the instructions which were issued for the 1982 or 1983 model years are also acceptable.

The recommended structure of the 1984 model year application for certification is divided into the following sections:

1. Communications
2. Statement of Confidentially
3. [Reserved]
4. [Reserved]
5. [Reserved]
6. Maintenance and Warranty
7. Labeling
8. General Technical Description
9. [Reserved]
10. Engine Family Descriptions
11. [Reserved]
12. Test Vehicle Information
13. [Reserved]
14. [Reserved]
15. [Reserved]
16. Request for Certificate

Chapter 3 of these instructions specifies the precise contents of each of these sections.

The division of the application into sections reflects the fact that the elements of information within the application vary widely in their relevance and applicability to the applicant's product line or certification program as a whole. The data required by Section 10 (Engine Family Descriptions), for example applies to a single engine family; a description of a carburetor in Section 8 (General Technical Description) would pertain to all vehicles and engine family/exhaust emission control system combinations that would be equipped with that carburetor during a particular model year; the discussion of Maintenance and Warranty (Section 6) would apply to the applicant's entire certification program and product line for one model year. The suggested format groups together in Sections 1 through 8 the general information that applies broadly to the entire product line or certification effort; Sections 9 through 15 provide information which are specific to particular test vehicles or engine families; Section 16 is a summary of the data required to substantiate that the new vehicles comply with Federal emission standards (Ref: 40 CFR 86.410-80).

2.4 Size and Form of the Application

All applications should be presented on 8-1/2 inch by 11 inch paper, or a reasonable equivalent, and be bound in a looseleaf cover of the same approximate size. Divider pages should be used to separate the recommended application sections from one another.

2.5 Referencing

Referencing permits a reduction in the size of the application by minimizing duplication and redundancy. In many of the applications that were submitted in previous model years, identical information which was applicable to several engine families was reproduced in several different places.

"Referencing" makes use of a single description to cover all instances within the application where that information may be necessary to eliminate such needless repetition.

Applicants are encouraged to reduce duplication by referring to the location of a unit of information's first submission whenever access to that information is required, rather than needlessly reproducing identical data. In essence, the concept of referencing reduces paperwork by encouraging the applicant to submit a unit of information only once for each model year. Referencing across model years is not allowed with the exception that starting with the 1984 model year applicants may reference Test Vehicle Information, Section 12, across model years. However, the applicant must either (1) submit Section 12 in a separate binder or (2) supply a binder which EPA can use to separate Section 12 from the rest of the 1983 model year application.

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Applicants should be wary, however, of applying the referencing concept too freely and producing an application whose every page is a bewildering network of allusions to other pages of the application. Such overuse of referencing would generate a document that, although free of repetition, could not be reviewed without large amounts of inefficient crosschecking and page-turning. Applicants should consequently exercise good judgment to prevent taking the referencing concept to unproductive extremes.

2.6 Page Numbering

Each page number should include the respective section number, e.g., 02-2 (section 02.00.00.00 -page 2), 08.01.01-15 (section 08.01.01.00 -page 15), 05.01-9 (section 05.01.00.00 -page 9). The detail of the indexing system which is used in page numbering should be based upon the amount of information contained in a given section. In section 02.00.00.00, there is not a large enough volume of information to support a finer breakdown; however, in section 08.01.00.00 there may be many pages of carburetor description as well as fuel injection description so it may be appropriate to use three levels of indexing in the page number (even four may be appropriate if there are a number of carburetors to describe). It is up to the applicant to decide what type of

detail is appropriate for his application. Some provision, such as the use of decimal numbers, should be made for adding a new page with new or supplemental data without disturbing the numbering of the other pages in a particular section, e.g., 02-2.1.

For sections that are specific to a particular engine family (e.g., 10.00.00.00, 16.00.00.00), the page numbering system should include the name of the appropriate engine family to avoid confusion in handling many pages of similar format, e.g., 10-DKA100044A7 (for engine family DKA100044A7). For purposes of page numbering, the standardized engine family name (see Appendix pages 1-5) may be abbreviated by deleting the model year and manufacturer characters, which would be common to all of a manufacturer's engine families for a given model year, and the check-sum digit, e.g., 10-100044A-2. Further abbreviation is permissible as long as the resulting designation is sufficient to identify the engine family uniquely with in the application. If displacement and the uniqueness digits constitute a distinctive abbreviation for the family name, for instance, then 10-1000A would be an adequate page number. Applicants who wish to use abbreviated family names shorter than seven characters should clearly indicate on the divider page that precedes the engine family information the abbreviation to be used; all such abbreviations should be summarized in a table at the beginning of Section 10.00.00.00).

2.7 Indexing

The format recommended in these instructions assigns a unique eight-digit code to every element or unit of certification data contained within the application. Each code consists of four two-digit pairs, such as 10.03.01.03, with each successive pair indicating a more precise and specific level of description. Hence, in this example, the 10 refers to engine family descriptions; the 03 refers to the fuel system (one of the individual engine parameters); the 01 refers to carburetor; and the 03 refers to calibration.

The table on pages 2-5 and 2-6 sets forth all codes which can be used within an application for certification. Some of these codes include two-digit pairs whose value is double zero (00, as in Carburetors--08.01.01.00). The presence of the double zero pair indicates that one available level of the indexing scheme has not been assigned by EPA. Designations at this level can and should be assigned by applicants, however, if distinctions at this level of precision need to be drawn. If an applicant needs to provide general technical descriptions of two kinds of carburetors, for example, the pertinent sections of the application could be labeled 08.01.01.01 and 08.01.01.02.

All submissions of certification data, should be structured according to the indexing order outlined below. Page numbers should also reflect this order, as is specified in Subpart 6 of Chapter 2 on page numbering. It is not strictly necessary to tag information within the pages of the application with their corresponding codes, if it is always clear what kind or element of data is being presented or described.

Section Number	Sequence Number	Title
01.00.00.00		COMMUNICATIONS
.01.00.00		Mailing Information
.01.00		EPA Liaison Representative in the U.S.
.02.00		Representative in Foreign Country
.03.00		Certificate Information
02.00.00.00		STATEMENT OF CONFIDENTIALITY
03.00.00.00		RESERVED
04.00.00.00		RESERVED
05.00.00.00		RESERVED
06.00.00.00		MAINTENANCE AND WARRANTY
.01.00.00		Maintenance and Use Instructions for Ultimate Purchasers
.02.00.00		Owner's Manuals
.03.00.00		Shop Manuals
.04.00.00		Technical Service Bulletins
.05.00.00		Emission System Warranty Statement
07.00.00.00		LABELING
08.00.00.00		GENERAL TECHNICAL DESCRIPTION
.01.00.00		Fuel Systems
.01.00		Carburetor
.02.00		Fuel Injection
.02.00.00		Ignition System
.03.00.00		Superchargers or Turbochargers
	08.04.00.00	Emission Control Systems
	.01.00	Crankcase
	.02.00	Engine Modification
	.03.00	Air Injection
	.04.00	Other
	.05.00.00	Auxiliary Emission Control Systems
	.06.00.00	Emission Control Warning System
	09.00-00.00	RESERVED
	10.00.00.00	ENGINE FAMILY DESCRIPTIONS (See Chapter 3 on preparing the application for the contents of this section)

11.00.00.00	RESERVED
12.00.00.00	TEST VEHICLE INFORMATION
.01.00.00	Zero Kilometer Validation Data
.02.00.00	Emission Test Results
.03.00.00	Maintenance Logs
.04.00.00	Engineering Reports
13.00.00.00	RESERVED
14.00.00.00	RESERVED
15.00.00.00	RESERVED
16.00.00.00	REQUEST FOR CERTIFICATE
.01.00.00	Statement of Compliance
.02.00.00	Emission Data Summary
.03.00.00	Certificate Information
.04.00.00	Production Engine Parameters
.01.00	Parts List
.02.00	Production Tolerances
.03.00	Quality Control Information

2.8 Standardized Engine Family Names

Applicants are strongly encouraged to use the standardized engine family naming system which is illustrated on Appendix pages 1-5.

2.9 Submitting the Application

Submission of the application is made after testing is completed and the application is in final form. One copy should be forwarded with a letter of transmittal to;

Director Certification Division
Office of Mobile Sources
U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, Michigan 48105

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A duplicate copy of the application should be forwarded to:

Director
Manufacturers Operations Division (EN-340)

U.S. Environmental Protection Agency
401 M. Street, S. W.
Washington, D. C. 20460

2.10 Revising the Application

After the application has been submitted, revisions may become necessary. The material which needs to be submitted depends upon whether or not a revision involves a product line change that may have an effect on emissions.

If a revision merely corrects an error or omission and does not involve a product line change which may have an affect on emissions, only a brief description or explanation of the revision and the revised application pages are submitted.

If a revision involves a product line change which may have an affect on emissions, a Certificate Change Request (See Appendix page 6) must be submitted along with a description of the revision and the revised application pages.

Many applicants in the past have followed a practice of identifying successive running changes with a number which includes the family designation and model year of the vehicle being affected. (For example, the number of the first running change in the 1983 model year for the ABC family might be 83-ABC-01). This practice has proved to be quite useful and is highly recommended.

Each page of the application should include a revision block which provides space for the date of issue as well as the effective date of each revision.

Issue:

Revision Date;

Chapter 3

Preparing the Application

This chapter presents recommendations for preparing the sections of the application for certification in a manner that will ensure that the needs of EPA will be met. Careful adherence to these recommendations and the submission of all required data will greatly expedite the review process.

3.1 Communications (Section 01.00.00.00)

This section of the application should contain information concerning:

(a) Routine Communications

The names, addresses, and telephone numbers of all technical representatives who are authorized to communicate with EPA should be provided.

(b) Receipt of Advisory Circulars and Other Technical Information

The name and address of the representative who is to receive the information should be provided. If the information is normally received through some organization (e.g., Motorcycle Industry Council, Inc.), the fact should be noted so that unnecessary duplicate distribution can be avoided. If the information is to be picked up by couriers rather than mailed, this fact should be noted.

(c) Receipt of Certificates of Conformity

The name and address of the representative who is to receive the certificate should be provided.

At the beginning of the 1984 model year certification program EPA will assume that the Communications information provided by in the applicant's 1983 application for certification is still applicable. To assure EPA's continued ability to communicate without inconvenience or delay, the applicant should keep EPA informed of any substantive change that may occur to the Communications information prior to the submission of the 1984 application for certification. If the applicant has not applied for certification prior to 1984, the communication information should be submitted as soon as possible, preferably well in advance of the submission of the application.

3.2 Statement of Business Confidentiality (Section 02.00.00.00)

Section 208(b) of the Clean Air Act requires (1) the Administrator to disclose to the public all non-trade secret information and keep trade secret information confidential and (2) the person who has submitted the information

claimed to be confidential to make a satisfactory showing that the information in question would divulge trade secrets, if disclosed. If an applicant fails to make a claim the information in the application may be made available to the public without further notice to the applicant.

Confidentiality claims and substantiating information are to be included with the data for which confidential status is requested at the time of submission to EPA. For information for which confidential treatment is desired, the following questions need to be addressed;

1. Which information in the application for certification is considered to be entitled to confidential treatment until model introduction?

2. Which information in the application for certification is considered to be entitled to continuing confidential treatment after model introduction?

3. To what extent has the information been disclosed to others, and what precautions were taken with respect to these disclosures?

4. Is the information available to the public through legitimate means?

5. Can the information be derived from a detailed engineering inspection of the motor vehicle model in question or from information already public once the model is offered for public sale?

6. Would disclosure of the information be likely to result in substantial harm to the applicants competitive position? If so, a detailed discussion regarding what the harmful effects would be, why the effects would be substantial, and the nature of the casual relationship between disclosure and the harmful effects must be presented.

Complete answers to these questions must be supplied for all information which is claimed to be confidential. The EPA General Counsel will make a final determination on the claim partly on the supporting data which are provided.

Information which is submitted in substantiation of a confidentiality claim may be claimed to be confidential in its own right. If the information pertains to the confidentiality claim, is not otherwise possessed by EPA, and is marked, when received by EPA, as trade secret, proprietary, or company confidential, it will not be disclosed by EPA without the applicant's consent unless disclosure is ordered by a Federal court. If no claim accompanies this substantiation information when it is received by EPA, it may be made available to the public without further notice to the applicant.

To facilitate reproduction for release purposes, trade secrets should not be included on the same page as information which is available for public release.

3.3 Reserved (Section 03.00.00.00)

3.4 Reserved (Section 04.00.00.00)

3.5 Reserved (Section 05.00.00.00)

3.6 Maintenance and Warranty (Section 06.00.00.00)

40 CFR 86.412-78 specifies that:

1. Maintenance and use instructions which will be provided to ultimate purchasers of vehicles shall be furnished to EPA at least 30 days before being supplied to the ultimate purchasers.

2. At the time of issuance, all explanations regarding the use, repair, adjustment, maintenance, or testing of a vehicle relevant to the control of crankcase, or exhaust emissions issued by the manufacturer for use by other manufacturers, assembly plants, distributors, dealers, and ultimate purchasers. This requirement can be met by forwarding to EPA shop maintenance manuals, technical service bulletins, and vehicle owner's manuals.

In addition to this information, the emission system warranty which will be provided to the ultimate purchaser is to be submitted to EPA.

Two copies of each of these items must be submitted, one to the Certification Division in Ann Arbor and one to the Manufacturers Operations Division in Washington, D.C.

3.7 Label Format (Section 07.00.00.00)

A copy of each label (either the actual label, a photograph, or a drawing) to be used to comply with 40 CFR 86.413-78 must be submitted. A photograph or a written description of the location of the label on the vehicle for each model certified must also be submitted.

3.8 General Technical Description (Section 08.00.00.00)

This section should be a reference book for Section 10.00.00.00. whenever an explanation greater than a few words or a line is required in this section, a narrative explanation should be contained in Section 08.00.00.00. Similarly, whenever the configuration of a component needs to be shown, the drawing or schematic can be presented in Section 08.00.00.00.

Information, such as a emission control system features (Sec. 10.06.02.00), which does not differ within or among engine families, will appropriately be listed in Section 08.04.00.00 and then referenced for each family to eliminate duplication.

3.9 Reserved (Section 09.00.00.00)

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3.10 Engine Family Descriptions (Section 10.00.00.00)

The information submitted determines how the applicant's product line is subdivided into separate engine families. (See Appendix page 7)

When an application includes a number of engine families which share common characteristics, referencing should be used to avoid the submission of

redundant information. The submission of much of this information may be eliminated by referencing a particular engine family. For example, if a manufacturer wishes to certify families A, B, and C, each of which differ by one or more parameters, the applicant can submit all the required information on engine family A and then submit a single page for engine families B and C with a statement stating that these families are identical to engine family A except for the listed differences.

This concept can be enlarged where certain sections of an engine family may be different but would benefit from the use of referencing. Discretion will have to be used, however, to insure that this procedure is used in cases where there are few enough differences to make it an effective tool.

Section Number	Title
10.01.00.00	Common family parameters
.01.00	Block configuration
.01	Number of cylinders
.02	Cylinder head configuration (specify OHV, OHV/OHC, etc.) (Four Stroke only)
.03	Type of cooling (air, water)
.04	Cylinder arrangement (Inline, 90 Vee, etc.)
.02.00	Combustion cycle (four-stroke cycle, two-stroke cycle, etc.)
.03.00	Method of aspiration (natural, super- charged, etc.)
.02.00.00	Individual engine parameters (physical)
.01.00	Displacement (cc)
.02.00	Bore and stroke (mm)
.03.00	Advertised or rated HP @ RPM
.04.00	Advertised or rated torque
.03.00.00	Individual engine parameters (Fuel system)
.01.00	Carburetor
.01	Number of Carburetors
.02	Number of venturis per carburetor
.03	Calibration and range of adjustment
.04	Description
.02.00	Fuel Injection
.01	Basic Type (e.g., mechanical, electronic, timed, continuous)
.02	Point of injection (e.g., manifold, throttle body)

1Indicate whether net or gross, and specify method of measurement, e.g., 25
kw @ 7,000 RPM, SAE net.

- 10.03.02.03 Calibration and range of adjustment
- .04 Description
- .04.00.00 Individual engine parameters (Ignition system)
 - .01.00 Basic ignition timing and range of adjustment
 - .02.00 Advance or retard calibration
 - .03.00 Description
- .05.00.00 Individual engine parameters (Supercharger or turbocharger)
 - .01.00 Type (centrifugal, roots, etc.)
 - .03.00 Calibration (if applicable)
- .06.00.00 Individual engine parameters (emission control system)
 - .01.00 Crankcase emission control system? (yes or no)
 - .01 Calibration
 - .02 Description
 - .02.00 Exhaust emission control system
 - .01 List all emission control system on engine
 - .02 Description of each emission control system
 - .03 Calibration of each emission control system
 - .03.00 Auxiliary emission control device
 - .01 List all AECD used on engine
 - .02 Describes in detail each AECD
 - .03 Calibration of each AECD
 - .04.00 Evaporative emission control system used? (yes or no)
 - .05.00 Emission control related warning system description
- .07.00.00 Individual Vehicle Parameters
 - .01.00 Transmission
 - .01 Type (e.g., manual, automatic, semi-automatic)
 - .02 Gear ratios
 - .03 Overall drive ratios (expressed in N/V)²
 - .02.00 Vehicle mass or vehicle L_{ass} range
 - .03.00 Optional equipment (see Appendix pp. 8)
- .08.00.00 Projected engine family sales

(AECD)

~See Terminology, Chapter 2, Section 2.2.

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3.11 Reserved (Section 11.00.00.00)

3.12 Test Vehicle Information (Section 12.00.00.00)

The test vehicle information section should be submitted in a separate loose-leaf binder. Divider pages should be used to separate the test vehicles. This test vehicle information will remain in EPA files so that applicants may reference this information across model years when carryover of test vehicle is desired. Applicants may add test vehicles to this section at anytime during the certification model year or during any later certification model year.

3.12.1 Zero-Kilometer Validation Data

Before service accumulation on a test vehicle is initiated, the suitability of the vehicle for certification usage must be determined and documented. The required documentation involves information shown on page 11 of the appendix and all emission related components, such as carburetor, spark advance, air injection, and auxiliary emission control device flow curves or the results of other types of performance checks.

3.12.2 Emission Test Results

These data are obtained from each emission test that are performed on a certification vehicle and must be recorded. The results can be reported on forms similar to the one shown on page 9 in the Appendix.

3.12.3 maintenance Information

All maintenance, scheduled and unscheduled, performed on a certification vehicle must be recorded. A form similar to that shown on page 10 in the Appendix can be used to report the maintenance.

3.12.4 Engineering Reports

When unscheduled maintenance is performed on a certification engine an engineering report must be submitted. [Ref; 40 CFR 86.431-78(c)]

3.13 Reserved (Section 13.00.00.00)

3.14 Reserved (Section 14.00.00.00)

3.15 Reserved (Section 15.00.00.00)

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3.16 Request for Certificate (Section 16.00.00.00)

Statements of compliance with 40 CFR 86.408-78(a)(1) and (2) (ref. Advisory Circular No. 76), and 40 CFR 86.437-78(a)(1) and (2) must be provided.

3.16.1 Certification Information

The information which is included on pages 12 and 13 of the Appendix must be submitted. The exact format which is used on page 13 must be used to facilitate the inclusion of the information into the EPA computer data base.

3.16.2 Certificate Information

The following information concerning the certificates of conformity needs to be provided:

- a. The person to whom the certificates should be mailed.
- b. The exact engine family designation to appear on the certificate.

3.16.3 Production Part Numbers

A list of production part numbers needs to be included. A sample form for the presentation of part numbers is shown on page 14 in the Appendix.

3.16.4 production Vehicle Parameters

Production calibration data (showing tolerance limits) need to be included for each calibration of carburetor (or fuel injection systems), distributor, automatic choke, AECD, EGR, turbocharger etc., which is available within the product line. Each set of data and calibration should be identified by;

- a. Engine family
- b. Engine displacement
- c. Engine code
- d. Fuel system

Each calibration and set of production tolerance limits shall also indicate (1) any differences from tolerance limits previously included in the application and (2) any special points at which all production pieces are checked and/or adjusted. For example, all carburetors are flow checked and air/fuel ratio adjusted at 2 and 6 pounds per minute air flow and checked at 4 and 30 pounds per minute air flow Applicants should also indicate the percentage of production pieces checked and/or adjusted.

Describe sampling technique. i.e., how production tolerances are determined and how tolerance bands are used- For example, a 100 percent check, with rejection of all pieces outside of bands, a 2 percent audit of production, or a batch sampling technique.

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For any production curve or calibration referenced in this section that is identical in all respects to an engineering curve or calibration previously included in this application, reference to the curve number and latest revision date in this section can be made in lieu of resubmitting the curve or calibration.

Alternatively, the applicant may provide an unqualified statement such as the following, defining the tolerances expected to apply to production vehicles;

This application for certification identifies and describes those vehicles to be covered by the certificate(s) of conformity issued by EPA, and this application for certification covers only those new motor vehicles to be produced by (company name) which conform, in all material respects, to the design specifications (including tolerances) which are contained herein.

Chapter 4

Requirements for Small-Volume Applicants

4.1 Introduction

Small volume applicants (total projected U.S. sales for the model year are less than 10,000 units) are required to prepare and maintain the information listed in the first three chapters of this document and to keep this information in their files. However, only the information specified in 4.2 below should be submitted to EPA.

4.2 Submission Requirement

Small-volume applicants should submit only the following items to EPA.

1. Communication information including the name and address of the manufacturer; the name and address of the importer; the names, addresses, and telephone numbers of individuals authorized to communicate with EPA and of individuals responsible for certification.
2. Vehicle description information including a brief description of the vehicles to be covered by the certificate. The manufacturer's sales data book or advertising, including specifications, can be submitted to satisfy this requirement.
3. Statement of compliance information as specified in 40 CFR 86.437(b)(1)(ii), need to be submitted.
4. Certificate information including the following;
 - a. The person to whom the certificates should be mailed.
 - b. The corporate name that should appear on the certificate.
 - c. The engine family designations that should appear on the certificate.
5. Owners manuals and service or shop manuals (as soon as they become available).

This information should be submitted with a letter of transmittal to;

Director
Certification Division
Office of mobile Sources
U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, Michigan 48105

4-2

A duplicate copy should be submitted to:

Director
Manufacturers Operations Division (EN-340)
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

APPENDIX

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EPA STANDARDIZED ENGINE FAMILY CODES FOR MOTORCYCLES

BACKGROUND

EPA-OMSAPC has proposed to the manufacturers of LDV's that they adopt a standard format for their engine families. The main impetus behind the standard format is to reduce the number of transcription errors that occur when the engine families are entered into the data base. The standard format is designed to avoid the use of letters that are confused with numbers and it has a check digit to further assure accurate data entry. For those who are unfamiliar with a check digit there is a discussion at the end of this report. The proposed ef codes also have fixed length and contain the same general information.

Motorcycle certification could benefit from this type of standard ef code; therefore, the format has been revised to be suitable for these types of vehicles.

PROPOSED FORMAT FOR STANDARDIZED ef CODE

The proposed ef code for motorcycles is formatted as follows:

first character	Model year (see Table 1)
characters 2 and 3	Letter code describing manufacturer (see Table 2)
	characters 4, 5, 6, and 7 Displacement in cc's

character 8	Number of strokes (2 or 4, 1 for rotary)
character 9	Number of carburetors
character 10	Letter code to make first 10 digits unique (any letter except for I, O, Q, S, U and V)
character 11	Check sum digit

Example--A 1980 Suzuki GS1000E would be designated as:

ASK099744A7

A = MY 1980

SK = Suzuki

0997 = 997 cc's

4 = 4 stroke

4 = 4 carburetors

A = uniqueness digit

7 = CSD (Method of determining CSD is shown below)

Check-Sum Digit (CSD)

A check-sum digit is used in codes as a means of checking that the characters entered are correct. For example, in university courses, the registration code for Math 321 Section 4 might be 456-321-4-5 (456 = Math). The 5 is tacked on the end so that the sum of all the digits is evenly divisible by some arbitrary number, in this case 10 (i.e., $4 + 5 + 6 + 3 + 2 + 1 + 4 + 5 = 30$, which is divisible by 10). Thus a transcription error such as 466-321-4-5 would be flagged by a computer program. If the codes are alpha-numeric, then a computer program will also have to convert the alphabetical characters to numerical values.

Error checking with a CSD can be made more effective if different weights are applied to the characters. For example, character 1 might be multiplied by 9, character 2 by 8, and so forth. the CSD would be determined by adding the products and then dividing by some arbitrary number. This method would help catch transposition errors that would not be detected by the straight sum

method. In the example shown, if the number were entered as 456-312-4-5 (the 1 and 2 being switched), and the digits were added separately, the computer would accept it since the sum is still equal to 30. However, if the characters were weighted, the sums would be different if two characters were switched.

Method of Determining CSD

Step 1. Assign to each number in the ef code its actual mathematical value and assign to each letter the value specified below:

A = 1	J = 1	T = 3
B = 2	K = 2	U = 4
C = 3	L = 3	V = 5
D = 4	M = 4	W = 6
E = 5	N = 5	X = 7
F = 6	P = 7	Y = 8
G = 7	R = 9	Z = 9
H = 8	S = 2	decimal pt = 1

Step 2. Multiply the assigned value for each character in the ef code by the weight factor specified for it below:

	Weight Factor
1st	10
2nd	9
3rd	8
4th	7
5th	6
6th	5
7th	4
8th	3
9th	2
10th	1

Step 3. Add the resulting products and divide the total by 11. The remainder is the CSD. If the remainder is 10, the CSD is X.

Example 1: Determine the CSD for the Suzuki example ASK099744A.

	A	S	K	0	9	9	7	4	4	A
Assigned Value	1	2	2	0	9	9	7	4	4	1
Weighted Value	10	9	8	7	6	5	4	3	2	1

Products	10	18	16	0	54	45	28	12	8	1
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Sum of Products = 192

Divide by 11 = 17 + 5/11

CSD = 5

Therefore, ef code is ASK099744A5.

TABLE 1. PROPOSED SUBCODES FOR MODEL YEAR

Year	Code
1980	A
1981	B
1982	C
1983	D
1984	E
1985	F
1986	G
1987	H
1988	J
1989	K
1990	L
1991	M
1992	N
1993	P
1984	R
1995	S
1996	T
1997	V
1998	W
1999	X
2000	Y
2001	1
2002	2
2003	3
2004	4
2005	5
2006	6
2007	7

2008	8	
2009		9
2010		A
2011		B
2012		C

TABLE 2. PROPOSED SUBCODES MANUFACTURER OF MOTORCYCLES

Code	Manufacturer
BM	BMW
HD	Harley-Davidson
HN	Honda
KA	Kawasaki
SK	Suzuki
YA	Yamaha
DU	Ducati
LM	Lambretta
TR	Triumph
ML	Moto Laverda
MM	Moto Morini
MC	OMC Lincoln
MG	Moto Guzzi
SC	Scooters India
SR	Sidecar Imports
VP	Piaggio (Vespa)
AJ	American Jawa
BJ	Bajaj
RE	Reliant
TH	Performance Vehicles

Certification Change Request form stored in CD8206_1.PCX

Section 10.00.00.00 Engine Family Description

Family Identification

Identification Required	Engine Code	Engine Code	Engine Code
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e.g.,

10.10.11.00	Transmission		
.12.00	Loaded vehicle mass		
.13.00	Equivalent inertia mass		

Section 10.00.00.00 Optional Equipment

Family Identification

Exhaust Emission Control System

List all optional equipment which is expected to be installed on motorcycles in this family indicating separately
factory installed, dealer installed, distributor installed, etc. options.

Item	Mass (Kg)	Non-Availability
	Standard	Option

Submit a separate sheet for each family.

This includes items which directly affect emissions (like optional alternator) as well as other items which may affect the curb mass and inertial mass.

Indicate any models or configurations for which these optional items are not available.

EPA I.D. NO.

VEHICLE LOG SHEET*

Vehicle No. (if used)

Engine Family		Displacement	cc
Model	Vehicle Serial No.		
Transmission	Engine Code	Exhaust Emission	
Control System**			
Engine Displacement Class		Crankcase	
Control System			

Test Odom	System	Actual	Ambient Emission
Results-gm/Km	Event	Idle	
Date No. Kilometre	Kilometres***	Speed	Temp. (C) ITC CO
C02	MPG Description		

*Indicate all emission measurements performed on a vehicle, including EPA tests. Also indicate whether tests are before or after tune-up, scheduled maintenance, unscheduled maintenance, giving brief description of maintenance and additional information requested by EPA (engineering reprt, data, etc.). Include partial, void, and other tests.

**Indicate catalyst code, if applicable.

***Specify correction, i.e., $\text{System Kilometres CFx} = \text{Odom. Kilometres} + \text{IC}$
where CF = Correction and IC ' initial
correction.

EPA I.D. NO.

MAINTENANCE LOG SHEET*

Vehicle No. (if used)

Engine Family	Displacement	cc Model
Vehicle Serial No.		
Transmission	Engine Code	Exhaust Emission
Control System**		
Engine displacement Class		Crankcase
Control System		

Odometer

System

Date Kilometres
Authority***

Report No.

Kilometres

Maintenance and

*Give a complete detailed description of all maintenance performed. Specify the EPA representative who gave prior approval (and date) or state the reason why the prior approval was not required (regulations, etc.).

*Indicate catalyst code, if applicable.

***All specifications checked should be reported e.g., RPM before and after
reset, ignition timing. New I.D. numbers
should be retained for replaced components.

Section 12.00.00.00

VEHICLE DATA SHEET

Manufacturer _

Vehicle Specifications:

Engine Family	Vehicle Serial No.
Vehicle I.D. No. (if used)	Model
Displacement Class	
Engine Code and Serial No.	Displacement (cc)
No. Rotors/Cylinders	Compression Ratio
Advertised HP	Bore cm Stroke
Transmission	Drive Ratio
Tire Size	Curb Mass
Carburetor Make	No. of Venturis
Choke Setting	Distributor Make
Exhaust Emission Control System**	
AECD's and Calibration Values	

2. Engine Tune-up Specifications (include all label specifications and procedures, indicate Specified/Actual)

Basic Ignition Timing /	Degrees	TDC at	/	RPM
Setting Procedure				
Idle Speed /	RPM in	/	Dwell /	Idle CO
Fast Idle Speed				
Setting Procedure				
Spark Plug Type	Spark Plug Gap (mm)			

3. Test Conditions:

Dynamometer Inertia	Actual Road Load	Power	NT at
KPH			
Tank Fuel Volume (litres)	Shift Procedure		
Starting Procedure***			
Fuel Type			

* If applicable.

** Indicate catalyst code if applicable.

*** As outlined in the vehicle Owner's Manual.

Exhaust Emission Deterioration Factor Data-/

Engine Family	Exhaust Emission Control System
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Vehicle No.

EPA I.D. No.

Emission Values-/

Actual

System

Test

Kilometers

Number

HC

CO

Interpolated Values:

.

HC = .

CO =

HC = .

CO =

Deterioration Factors:

Engine-System HC Factor =
Engine-System CO Factor = _ . _ _

1/ Submit a separate sheet for each family-control system combination. List only the data used to calculate the deterioration factors. If more than one vehicle is used to calculate the deterioration factors for a single engine-system combination, submit an additional sheet for each vehicle, deleting the "Interpolated Values," and "Deterioration Factors" information from the additional sheets.

2/ In accordance with 40 CFR 86.544-78.

Motorcycle Certification Information Sheet = stored as CD8206_2.PCX

Section 16.00.00.00 Parts List	Engine Code	Engine Code	Engine Code
Fuel pump part number			
Carburetor assembly part number			
Fuel injection control unit part number			
Supercharger or Turbocharger:			
Assembly			
Turbine			
Compressor housing			
Wastegate valve			
Spark plug identification number			
Alternate spark plugs			
Distributor (spark advancer and contact breaker) assembly part number			
Crankcase emission control system component part number			
Auxiliary emission control devices identification (color, production code, number, etc.) of calibrated components			
Air injection system:			
Air pump part number			
Diverter valve part number			
Check relief valve part number			
Exhaust Gas Recirculation System			
EGR valve			
Amplifier			
Modulator			
Delay valve			
Catalyst assembly part number			

Other major exhaust emission control
system-part number(s) of calibrated
component(s)

Emission control related warning
system-part number(s) of calibrated
component(s)

Note: In each case, both the manufacturer's part number and any vendor's
part number should be included and identified.